

Amendments to the claims

1-8. (canceled)

9. (currently amended) An apparatus for generating a pressurized hot water pulse and delivering it to a hot water utilization station comprising:

an inlet for water, said inlet being adapted to be closed during the delivery of the pressurized hot water pulse;

an outlet having a hot water intake port and a hot water conduit for directing the pressurized hot water pulse to the hot water utilization station;

a pulse generator connected to said inlet and outlet, said pulse generator comprising a water heating chamber for receiving an amount of water via said inlet and for heating the water therein to produce sufficiently hot water for the hot water utilization station, a pressurization chamber for vaporizing water to generate pressurized steam to deliver under pressure said hot water in said heating chamber as the pressurized hot water pulse to the utilization station through said outlet, and a heating system for the heating and the vaporization of the water in said pulse generator, said heating chamber having a first end adapted to receive pressurized steam and a second end;

wherein said pressurization chamber provides pressurized steam to said first end of said heating chamber;

wherein said pulse generator is adapted to allow water to flow into said pressurization chamber from at least one of said water heating chamber and said inlet for the generation of the pressurized steam in said pressurization chamber by said heating system;

~~Apparatus as defined in claim 1~~ wherein said pulse generator further comprises a ~~sleeve~~ partition for dividing said generator into said pressurization chamber and said water heating chamber; and

~~Apparatus as defined in claim 8~~ wherein said pressurization chamber is formed between said ~~sleeve~~ partition and the side wall of said pulse generator, and comprises ~~a top~~ an opening for directing the pressurized steam to said first end of said water heating chamber, an evaporation chamber for said heating system to generate the pressurized steam and a chamber bottom.

10. (currently amended) Apparatus as defined in claim 9 wherein said pressurization chamber further comprises a lower opening ~~located at or near said chamber bottom for allowing~~ that allows part of the water in said pressurization chamber to be forced into said heating chamber by the differential pressure between said chambers, ~~said lower opening being substantially more resistive to flow than said top opening.~~

11. (original) Apparatus as defined in claim 9 wherein said pressurization chamber further comprises a steam distributor having a distribution chamber for receiving the pressurized steam from said evaporation chamber, a plate member located between said distribution chamber and said first end of said water heating chamber, and a plurality of openings on said plate member for distributing the pressurized steam to the hot water surface in said heating chamber.

12. (currently amended) An apparatus for generating a pressurized hot water pulse and delivering it to a hot water utilization station comprising:

an inlet for water, said inlet being adapted to be closed during the delivery of the pressurized hot water pulse;

an outlet having a hot water intake port and a hot water conduit for directing the pressurized hot water pulse to the hot water utilization station;

a pulse generator connected to said inlet and outlet, said pulse generator comprising a water heating chamber for receiving an amount of water via said inlet and for heating the water therein to produce sufficiently hot water for the hot water utilization station, a pressurization chamber for vaporizing water to generate pressurized steam to deliver under pressure said hot water in said heating chamber as the pressurized hot water pulse to the utilization station through said outlet, and a heating system for the heating and the vaporization of the water in said pulse generator, said heating chamber having a first end adapted to receive pressurized steam and a second end;

wherein said pressurization chamber provides pressurized steam to said first end of said heating chamber;

wherein said pulse generator is adapted to allow water to flow into said pressurization chamber from at least one of said water heating chamber and said inlet for the generation of the pressurized steam in said pressurization chamber by said heating system; and

~~Apparatus as defined in claim 1~~ wherein said pulse generator further comprises a steam distributor located between said pressurization chamber and said first end of said water heating chamber, said distributor having a plate member and a plurality of openings on said plate member for distributing the pressurized steam to the hot water surface in said heating chamber and minimizing the mixing between the pressurized steam and the hot water.

13. (canceled)

14. (currently amended) An apparatus for generating a pressurized water pulse and delivering it to a water utilization station comprising:

an inlet for water, said inlet being adapted to be closed during the delivery of the pressurized water pulse;

an outlet having a water intake port and a water conduit for directing the pressurized water pulse to the water utilization station;

a pulse generator connected to said inlet and outlet, said generator comprising a water chamber for receiving an amount of water via said inlet, a pressurization chamber for vaporizing water to generate pressurized steam to deliver under pressure the water in said water chamber as the pressurized water pulse to the utilization station through said outlet, and a heating system for the heating and vaporization of water in said pulse generator, said water chamber having a first end adapted to receive pressurized steam and a second end;

wherein said pressurization chamber provides the pressurized steam to said first end of said water chamber;

wherein said pulse generator is adapted to allow water to flow into said pressurization chamber from at least one of said water heating chamber and said inlet for the generation of the pressurized steam in said pressurization chamber by said heating system; and

~~Apparatus as defined in claim 1~~ wherein said pressurization chamber is located in or ~~above~~ near said first end of said water ~~heating~~ chamber and said heating system comprises an electric heater for the heating and evaporation of the water in said pressurization chamber, thereby allowing the pressurized steam to be generated directly at or ~~above~~ near said first end of said water ~~heating~~ chamber.

15. (currently amended) Apparatus as defined in claim 14 wherein said water ~~heating~~ chamber comprises a water heating ~~tube~~ chamber, a ~~delivery second~~ heater ~~located along said water heating tube~~ for heating the water in said ~~tube~~ water heating chamber, and a heating controller for said second heater for maintaining the water in said ~~tube~~ water heating chamber sufficiently hot for the ~~hot~~ water utilization station prior to the delivery of the hot water as a pressurized ~~hot~~ water pulse to the station, ~~said water heating tube having a sufficiently small cross-section to allow the hot water/steam interface in said tube to adopt substantially the shape of the cross section of said tube.~~

16-18. (canceled)

19. (currently amended) An apparatus for generating a pressurized water pulse and delivering it to a water utilization station comprising:

an inlet for water, said inlet being adapted to be closed during the delivery of the pressurized water pulse;

an outlet having a water intake port and a water conduit for directing the pressurized water pulse to the water utilization station;

a pulse generator connected to said inlet and outlet, said generator comprising a water chamber for receiving an amount of water via said inlet, a pressurization chamber for vaporizing water to generate pressurized steam to deliver under pressure the water in said water chamber as the pressurized water pulse to the utilization station through said outlet, and a heating system for the heating and the vaporization of the water in said pulse generator, said water chamber having a first end adapted to receive pressurized steam and a second end;

wherein said pressurization chamber provides the pressurized steam to said first end of said water chamber;

wherein said pulse generator is adapted to allow water to flow into said pressurization chamber from at least one of said water heating chamber and said inlet for the generation of the pressurized steam in said pressurization chamber by said heating system; and

~~Apparatus as defined in claim 1 further comprising~~ a second pulse generator, wherein said outlet of said pulse generator is connected to ~~one of the inlet and outlet for~~ said second pulse generator to enable a selective delivery of the hot water in either one of or both said generators, thereby providing the user a choice of delivering a small or a large portion of hot water to the ~~hot~~ water utilization device.

20. (canceled)

21. (currently amended) Apparatus for preparing a beverage by delivering a hot water pulse to a hot water utilization station comprising:

an inlet adapted to receive water from one of a reservoir and an in-house plumbing system;

an outlet for directing a hot water pulse to the hot water utilization station to provide a beverage;

a pulse generator connected to said inlet and outlet for producing and delivering a hot water pulse, said pulse generator comprising a chamber for receiving an amount of water via said inlet and a heating system for heating water and generating steam pressure to deliver the hot water under pressure through said outlet as a hot water pulse to the utilization station;

a filling valve for said inlet for allowing water to fill said chamber, said filling valve being adapted to move to a first position to allow water to fill said chamber after the delivery of a hot water pulse, thereby rendering said pulse generator ready to generate a next hot water pulse, and to move to a second position to prevent the reverse flow during the delivery of said hot water pulse under pressure;

a heating controller adapted to cause said heating system to heat the water in said chamber when the water temperature falls below a first temperature and to prevent said heating system from further heating the

water when the water temperature reaches a second temperature, thereby maintaining said amount of water between said first and second temperatures;

a pressure controller adapted to cause said heating system to produce pressurized steam to deliver hot water in said chamber under pressure as a hot water pulse through said outlet to the hot water utilization station and to prevent said heating system from further heating said pulse generator after the temperature on at least part of said pulse generator reaches a third temperature, said third temperature being substantially above said first and second temperatures; and

~~Apparatus as defined in claim 20~~ wherein said heating system comprises a heating heater for heating said ~~predetermined~~ amount of water in said chamber and a delivery heater for generating steam pressure to deliver the resulting hot water in said chamber as a hot water pulse ~~into the container~~ to the hot water utilization station for preparing the beverage, wherein said heating controller is for controlling said heating heater to maintain said hot water between said first and second temperatures and said pressure controller is for controlling said ~~second~~ delivery heater to control the delivery of the hot water pulse.

22. (currently amended) Apparatus as defined in claim 21 wherein said heating controller and pressure controller are adapted to allow only one of said heating heater and delivery heater to operate at any time, ~~thereby preventing water overflow into the container by said second heater during the period of maintaining said hot water between said first and second temperatures and preventing further heating of the water by said heating heater during the period of delivering said hot water pulse to the container.~~

23. (currently amended) Apparatus as defined in claim 21 said heating controller comprises a first thermostat for controlling said heating heater to maintain the hot water in said chamber between said first and second temperatures and a second thermostat adapted to disallow said pressure controller to turn on said delivery heater when the water in said chamber is below approximately said first temperature and to allow said pressure controller to turn on said delivery heater when the water in said chamber rises to approximately said first temperature, thereby preventing the delivery of the hot water pulse until the water in said chamber reaches approximately said first temperature.

24. (currently amended) Apparatus as defined in claim 21 wherein said heating controller and pressure controller comprise ~~comprises a thermostat~~ a switch having a first switch for controlling the electricity to said heating heater and a second switch for controlling said delivery heater ~~pressure controller~~, said ~~thermostat~~ switch being so constructed that only one of said first and second switches can be at the 'on' or 'close' position at a time.

25. (currently amended) Apparatus for preparing a beverage by delivering a hot water pulse to a hot water utilization station comprising:

an inlet adapted to receive water from one of a reservoir and an in-house plumbing system;

an outlet for directing a hot water pulse to the hot water utilization station to provide a beverage;

a pulse generator connected to said inlet and outlet for producing and delivering a hot water pulse, said pulse generator comprising a chamber for receiving an amount of water via said inlet and a heating system for heating water and generating steam pressure to deliver the hot water under pressure through said outlet as a hot water pulse to the utilization station;

a filling valve for said inlet for allowing water to fill said chamber, said filling valve being adapted to move to a first position to allow water to fill said chamber after the delivery of a hot water pulse, thereby rendering said pulse generator ready to generate a next hot water pulse, and to move to a second position to prevent the reverse flow during the delivery of said hot water pulse under pressure;

a heating controller adapted to cause said heating system to heat the water in said chamber when the water temperature falls below a first temperature and to prevent said heating system from further heating the water when the water temperature reaches a second temperature, thereby maintaining said amount of water between said first and second temperatures;

a pressure controller adapted to cause said heating system to produce pressurized steam to deliver hot water in said chamber under pressure as a hot water pulse through said outlet to the hot water utilization station and to prevent said heating system from further heating said pulse generator when the temperature on at least part of said pulse generator reaches a third temperature, said third temperature being substantially above said first and second temperatures; and

~~Apparatus as defined in claim 20~~ wherein said pressure controller comprises a thermostat having an activation beam, said thermostat being adapted to move automatically from its 'on' position to its 'off' position when the chamber temperature reaches said third temperature to cause said heating system to stop supplying heat to said pressurization chamber, but to move from said 'off' position to said 'on' position only after said activation beam is pressed or turned.

26. (original) Apparatus as defined in claim 25 wherein said pressure controller further comprises an electrical switch coupled to said activation beam in such a way that the action of turning on said switch will cause said thermostat to move to its 'on' position.

27-31. (canceled)

32. (currently amended) Apparatus for preparing a beverage by delivering a hot water pulse to a hot water utilization station comprising:

an inlet for receiving water;

an outlet for directing a hot water pulse to the hot water utilization station to provide a beverage;

a pulse generator connected to said inlet and outlet for producing and delivering the hot water pulse, said pulse generator comprising a chamber for receiving an amount of water via said inlet and a heating system for heating water and generating steam pressure to deliver the hot water under pressure through said outlet as a hot water pulse to the utilization station;

a heating controller adapted to cause said heating system to heat the water in said chamber when the water temperature falls below a first temperature and to prevent said heating system from further heating the water when the water temperature reaches a second temperature, thereby maintaining said amount of water between said first and second temperatures;

a pressure controller adapted to cause said heating system to produce pressurized steam to deliver hot water in said chamber under pressure as a hot water pulse through said outlet to the hot water utilization station and to prevent said heating system from further heating said pulse generator when the temperature on at least part of said pulse generator reaches a third temperature, said third temperature being substantially above said first and second temperatures; and

~~Apparatus as defined in claim 20~~ wherein said heating system comprises an electric heater located ~~between said filling valve and~~ in or near the top part of said chamber to allow said electric heater to generate steam directly at or near said top part of said chamber to build said steam pressure above the hot water in said chamber, thereby substantially preventing said heater and the steam from heating said hot water during the delivery of the hot water pulse through said outlet to the container.

33-35. (canceled)

36. (original) Apparatus for preparing a beverage such as coffee or tea with a hot water pulse comprising:

an inlet adapted to receive water from one of a reservoir and an in-house plumb system;

an outlet for directing a hot water pulse into a container containing a supply of flavor-containing materials adapted to provide a drink when interacted with hot water;

a chamber for receiving an predetermined amount of water via said inlet;

an electric heater for heating said predetermined amount of water in said chamber;

a heater controller having a temperature sensing member in heat-conducting relation to said electric heater to sense the temperature of said heater, said controller being adapted to cause said electric heater to heat the water in said chamber when the sensed heater temperature is below a first temperature and to prevent said heater from heating the water when the sensed temperature reaches a second temperature, thereby maintaining

the hot water in said chamber approximately between said first and second temperatures for a period of time prior to the delivery of a hot water pulse;

a delivery system for delivering at least part of the hot water in said chamber as a hot water pulse through said outlet to the container, wherein the hot water interacting with the supply of flavor-containing materials to provide a drink; and

a Delta temperature narrower having a first end in heat-conducting relation to said temperature sensing member and a second end extended to one of an air space and an object that are substantially cooler than said heater during said period of time prior to the delivery of the hot water pulse, said Delta temperature narrower being adapted to conduct heat away from said temperature sensing member at said first end to said one of an air space and an object at said second end at a such rate that the difference between said first and second temperature is substantially reduced, thereby substantially reducing the temperature variation of the hot water in said chamber prior to the delivery of a hot water pulse to the container by said delivery system.

37 - 38. (canceled)

39. (currently amended) Apparatus for generating a pressurized water pulse and delivering it to a water utilization station comprising:

an inlet adapted to receive water from a water reservoir;

a filling valve for said inlet;

an outlet for directing a pressurized water pulse to the water utilization station;

a pulse generator connected to said inlet and outlet, said pulse generator comprising a water chamber for receiving an amount of water from the reservoir via said inlet, a pressurization chamber for heating and vaporizing water to generate pressurized pressure for delivering the water in said water chamber as a pressurized water pulse through said outlet to the utilization station, and a heating system for the heating and vaporization of water in said pulse generator, said water chamber having a first end adapted to receive the pressurized steam from said pressurization chamber and a second end;

wherein said filling valve is adapted to open to allow water to enter said pulse generator after delivery of a pressurized water pulse and to prevent the reverse flow during the delivery of the pressurized water pulse to the water utilization station;

wherein said generator is adapted to allow said pressurization chamber to provide pressurized steam to said first end of said water chamber substantially;

wherein said pressurization chamber is adapted to receive water from at least one of said water chamber and said inlet;

~~Apparatus as defined in claim 37~~ wherein said pressurization chamber comprises an evaporation chamber to which said heating system supplies heat to generate pressurized steam therein and a chamber opening ~~adapted to allow water from said at least one of said water chamber and said filling valve to enter said evaporation chamber, said chamber opening being also adapted~~ to direct the pressurized steam in said evaporation chamber to said first end of said water chamber; and

~~Apparatus as defined in claim 38~~ wherein said pulse generator further comprises a steam distributor located between said pressurization chamber and said first end of said water chamber, said distributor having a plate member and a plurality of openings on said plate member for distributing the pressurized steam from said evaporation chamber to said first end of said water chamber

40. (canceled)

41. (currently amended) Apparatus for generating a pressurized water pulse and delivering it to a water utilization station comprising:

an inlet adapted to receive water from a water reservoir;

a filling valve for said inlet;

an outlet for directing a pressurized water pulse to the water utilization station;

a pulse generator connected to said inlet and outlet, said pulse generator comprising a water chamber for receiving an amount of water from the reservoir via said inlet, a pressurization chamber for heating and vaporizing water to generate pressurized pressure for delivering the water in said water chamber as a pressurized water pulse through said outlet to the utilization station, and a heating system for the heating and vaporization of water in said pulse generator, said water chamber having a first end adapted to receive the pressurized steam from said pressurization chamber and a second end;

wherein said filling valve is adapted to open to allow water to enter said pulse generator after delivery of a pressurized water pulse and to prevent the reverse flow during the delivery of the pressurized water pulse to the water utilization station;

wherein said generator is adapted to allow said pressurization chamber to provide the pressurized steam to said first end of said water chamber;

wherein said pressurization chamber is adapted to receive water from at least one of said water chamber and said inlet;

~~Apparatus as defined in claim 37~~ wherein said pressurization chamber is located ~~between said filling valve and~~ near said first end of said water chamber; and

~~Apparatus as defined in claim 40~~ wherein said water chamber comprises ~~a tube comprising at least a section of bent tube, said tube being~~ an elongated chamber adapted to keep the interface between the water and

pressurized steam in said tube substantially intact during the delivery of a pressurized water pulse, thereby minimizing the heating of the water in said tube by the pressurized steam.

42. (currently amended) Apparatus for generating a pressurized water pulse and delivering it to a water utilization station comprising:

an inlet adapted to receive water from a water reservoir;

a filling valve for said inlet;

an outlet for directing a pressurized water pulse to the water utilization station;

a pulse generator connected to said inlet and outlet, said pulse generator comprising a water chamber for receiving an amount of water from the reservoir via said inlet, a pressurization chamber for heating and vaporizing water to generate pressurized pressure for delivering the water in said water chamber as a pressurized water pulse through said outlet to the utilization station, and a heating system for the heating and vaporization of water in said pulse generator, said water chamber having a first end adapted to receive the pressurized steam from said pressurization chamber and a second end;

wherein said filling valve is adapted to open to allow water to enter said pulse generator after delivery of a pressurized water pulse and to prevent the reverse flow during the delivery of the pressurized water pulse to the water utilization station;

wherein said generator is adapted to allow said pressurization chamber to provide the pressurized steam to said first end of said water chamber;

wherein said pressurization chamber is adapted to receive water from at least one of said water chamber and said inlet; and

~~Apparatus as defined in claim 37~~ wherein said water chamber comprises a plurality of slim chambers, each of which has a top opening in communication with said inlet and a bottom opening in communication with said outlet, for reducing convective flow of the water, thereby preventing or reducing the heating of the water by the pressurized steam in said water chamber.

43-49. (canceled)

50. (original) Apparatus for providing both an under-sized hot water pulse and full-sized hot water pulse comprising:

an inlet for receiving water from a reservoir;

a pulse generator connected to said inlet for producing and delivering a hot water pulse, said pulse generator comprising a chamber for receiving via said inlet an amount of water from the reservoir, a heating system adapted to heat said amount of water in said chamber and adapted to generate pressurized steam for

delivering the hot water as a hot water pulse, and a controller adapted to cause said heating system to generate said pressurized steam;

a filling valve for said inlet for allowing water to fill said pulse generator, said filling valve being adapted to open to allow water to enter said chamber when the pressure therein falls below a predetermined pressure after the delivery of a hot water pulse and to prevent the reverse flow during the delivery of said hot water pulse under pressure;

an outlet having a first hot water intake port located at a first predetermined distance above the bottom of said chamber, a second hot water intake port located at a second predetermined distance above the bottom of said chamber, and a selection valve for a user to connect one of said first and second intake ports to a hot water utilization station, said second predetermined distance being substantially larger than said first predetermined distance; and

whereby in operation, when a user moves said selection valve to connect said first hot water intake port to the utilization station, the hot water between said filling valve and said first intake port in said chamber will be delivered as an undersized hot water pulse to the utilization station, and when a user moves said selection valve to connect said second intake port to the utilization station, the hot water between said filling valve and said second intake port in said chamber will be delivered as a full-sized hot water pulse to the utilization station.

51. (currently amended) An apparatus as defined in claim ~~51~~ 50 wherein said pulse generator is adapted to prevent the residual heat after the delivery of one of said undersized and full-sized hot water pulses from generating any significant steam pressure when said chamber is refilled with water from the reservoir, thereby preventing the delivery of any un-wanted premature or baby water pulse to the utilization station.

52-61. (canceled)

62. (currently amended) Apparatus for generating steam and delivering it to a steam utilization station comprising:

an inlet for water;

a generator connected to said inlet for producing and delivering steam, said generator comprising a water chamber for receiving an amount of water via said inlet and a pressurization chamber for receiving heat from a heating system to heat and vaporize the water in said pressurization chamber to generate steam and for allowing the delivery of the steam to the steam utilization station;

wherein said pressurization chamber is adapted to contain a substantially smaller amount of water than said generator to reduce the amount of time needed to heat the water in said pressurization chamber to the

boiling point to generate steam, thereby enabling fast generation and delivery of steam to the steam utilization station;

wherein said water chamber and pressurization chamber are adapted to allow the water in said water chamber to flow and feed into said pressurization chamber; and

~~Apparatus as defined in claim 55~~ wherein said generator further comprises a ~~sufficiently heat-insulating partition wall~~ partition between said pressurization chamber and water chamber to prevent the steam and hot water in said pressurization chamber from ~~heating~~ mixing with the water in said water chamber.

63. (currently amended) Apparatus for generating steam and delivering it to a steam utilization station comprising:

an inlet for water;

a generator connected to said inlet for producing and delivering steam, said generator comprising a water chamber for receiving an amount of water via said inlet and a pressurization chamber for receiving heat from a heating system to heat and vaporize the water in said pressurization chamber to generate steam and for allowing the delivery of the steam to the steam utilization station;

wherein said pressurization chamber is adapted to contain a substantially smaller amount of water than said generator to reduce the amount of time needed to heat the water in said pressurization chamber to the boiling point to generate steam, thereby enabling fast generation and delivery of steam to the steam utilization station; and

wherein said water chamber and pressurization chamber are adapted to allow the water in said water chamber to flow and feed into said pressurization chamber; and

~~Apparatus as defined in claim 55~~ wherein said generator further comprises a cover for the water in said water chamber, said cover being adapted to move up as the water chamber is being filled and move down as the water is evaporated in said pressurization chamber.

64. (currently amended) Apparatus as defined in claim ~~62~~ 63 wherein said cover comprises a layer of liquid having lower density and substantially higher boiling point than water.

65. (new) Apparatus as defined in claim 9 further comprising a heating controller for causing said heating system to heat the water in said heating chamber when the water temperature falls below a first temperature and for preventing said heating system from heating the water in said heating chamber when the water temperature reaches a second temperature, wherein said first and second temperatures are below the boiling temperature for water.

66. (new) Apparatus as defined in claim 65 wherein said heating controller comprises a thermostat located at or near the lowest part of said heating chamber to reduce the difference between said first and second temperatures.

67. (new) Apparatus as defined in claim 9 further comprises a filling valve for said inlet and a reservoir under ambient pressure for providing water to said inlet, said valve having a valve opening and a movable member adapted to open said valve opening after the delivery of a pressurized hot water pulse, thereby allowing water to flow into said heating chamber to render said generator ready for the generation of a next hot water pulse, and to close said valve opening during the delivery of the pressurized hot water pulse.

68. (new) Apparatus as defined in claim 9 further comprising a relief valve having a normally open valve opening to keep said heating chamber open to atmosphere and a valve member adapted to close said valve opening during the delivery of said pressurized hot water pulse and to open said valve opening after said delivery.

69. (new) Apparatus as defined in claim 14 wherein said water chamber comprises a tube having a sufficiently small cross-section to allow the water/steam interface therein to adopt substantially the same shape as the cross section of said tube during the delivery of the pressurized water pulse, thereby minimizing the heating of the water in said tube by the pressurized steam.

70. (new) Apparatus as defined in claim 14 further comprises a filling valve for said inlet and a reservoir for providing water to said inlet, said valve having a valve opening and a movable member adapted to open said valve opening after the delivery of a pressurized water pulse, thereby allowing water to flow into said heating chamber to render said generator ready for the generation of a next water pulse, and to close said valve opening during the delivery of the pressurized water pulse.

71. (new) Apparatus as defined in claim 70 further comprising an assistant valve located downstream said water intake port of said outlet for preventing air from entering said water chamber after the delivery of the pressurized water pulse, thereby improving the refilling of said water chamber by water from said inlet.

72. (new) Apparatus as defined in claim 14 further comprising a shield located next to said electric heater for preventing the water from said inlet from substantially cooling said heater after the delivery of a pressurized water pulse until the water sufficiently refills said water chamber, thereby saving energy and reducing the time needed for said electric heater to heat the water in said evaporation chamber to boiling point to generate the pressurized steam for delivering the next pressurized water pulse.

73. (new) Apparatus as defined in claim 14 further comprising one of a water-based decoration station, a cleaning station, a water-driven motion device and a water jet massager as the utilization station.

74. (new) Apparatus as defined in claim 21 wherein said heating controller comprises a thermostat located at or near the lowest part of said heating chamber to reduce the size of difference between said first and second temperatures.

75. (new) Apparatus as defined in claim 21 wherein said first and second temperatures are between 170° F to 210° F, which are substantially below the water boiling point.

76. (new) Apparatus as defined in claim 21 wherein said pressure controller turns off said delivery heater substantially before the end of the pressurized water pulse to prevent the generation of steam pressure when water refills said heating chamber, thereby enabling said pulse generator to meter one pressurized water pulse to the utilization station.

77. (new) Apparatus as defined in claim 21 further comprising a relief valve having a normally open valve opening to keep said heating chamber open to atmosphere and a valve member adapted to close said valve opening during the delivery of said pressurized hot water pulse and to open said valve opening after said delivery.

78. (new) Apparatus as defined in claim 21 further comprising a sufficiently horizontal and thin chamber or channel located between said filling valve and said reservoir for preventing the temperature increase of the water in said reservoir during the period of maintaining the water in said heating chamber between said first and second temperatures, thereby saving energy.

79. (new) Apparatus as defined in claim 32 wherein said heating system further comprises a second heater located in the lower part of said chamber and controlled by said heating controller to keep said hot water in said chamber between said first and second temperatures.

80. (new) Apparatus as defined in claim 32 further comprising a filling valve for said inlet and an ambient pressure reservoir connected to said inlet, said valve having a seal member adapted to move to a first position to allow water to fill said chamber after the delivery of a hot water pulse and to a second position to prevent the reverse flow during the delivery of said hot water pulse under pressure.

81. (new) Apparatus as defined in claim 41 wherein said elongated chamber comprises a tube having at least one of a bent section and a horizontal section.

82. (new) Apparatus as defined in claim 62 further comprising a chamber opening located in or near the lower part of said water chamber for allowing water to flow into said pressurization chamber as the water therein is vaporized into the steam and delivered to the steam utilization station.

83. (new) Apparatus as defined in claim 82 wherein said chamber opening is sufficiently large to enable the water in said water chamber to flow into said pressurization chamber sufficiently fast during the refilling of said water chamber via said inlet to cause a thermal shock for efficient removal of the scale formed in said pressurization chamber.

84. (new) Apparatus as defined in claim 82 further comprising a second opening on said pressurization chamber for introducing steam to the top end of said water chamber during the generation of the steam in said pressurization chamber, thereby facilitating the water flow from said water chamber to said pressurization chamber.

85. (new) Apparatus as defined in claim 62 wherein said inlet functions also as an outlet for the steam generated in said pressurization chamber.

86. (new) Apparatus as defined in claim 85 wherein said inlet is outwardly tapered to have a larger top end to enable the steam speed to slow down as the steam flows out of said inlet toward said larger top end to contact a person or object.

87. (new) Apparatus as defined in claim 62 further comprising a filling valve for said inlet and an ambient pressure reservoir connected to said inlet, said valve having a seal member adapted to move to a first position to allow water to flow into said water chamber after the delivery of the steam and to a second position to prevent the reverse flow during the delivery of said the steam to the utilization station.

88. (new) Apparatus for providing at least two different sizes of liquid pulse to a utilization station comprising:

an inlet for receiving liquid from a liquid supply;

a pulse generator connected to said inlet for producing a liquid pulse, said pulse generator comprising a chamber for receiving liquid via said inlet and a pressurization system for the building up of a pressurized gas above the liquid surface in said chamber to deliver a predetermined amount of liquid out of said chamber as said liquid pulse;

an outlet having a liquid intake port adapted to locate at a plurality of positions above the bottom end of said chamber of said pulse generator and a conduit connected to the utilization station; and

a volume selection valve for a user to select a position for said liquid intake port, whereby in operation the activation of said pulse generator causes the building up of a pressurized gas above the liquid in said chamber to pressurize said liquid and deliver the amount of liquid located above said liquid intake port in said chamber out of said outlet as said liquid pulse to the utilization station.

89. (new) An apparatus as defined in claim 88 further comprising an reservoir and an inlet valve for said inlet for allowing liquid from said reservoir to fill said chamber, said inlet valve having an valve opening and a valve seal member adapted to open said valve opening to allow liquid to enter said chamber after the delivery of a liquid pulse and to prevent the reverse flow during the delivery of said liquid pulse by the pressurized gas.

90. (new) An apparatus as defined in claim 88 wherein said pulse generator further comprises a heating system having a heater for heating water to generate pressurized steam as said pressurized gas to deliver the amount of liquid above said liquid intake port in said chamber to the utilization station.

91. (new) An apparatus as defined in claim 90 wherein said pulse generator further comprises a heating controller for controlling said heating system to maintain the liquid in said chamber between a first temperature and a second temperature and a pressure controller for controlling said heater to control the generation of said pressurized steam for delivering the liquid pulse.

92. (new) An apparatus for generating a pressurized liquid pulse and delivering it to a liquid utilization station comprising:

a reservoir for providing a supply of liquid;

an inlet connected to said reservoir;

a pulse generator comprising a liquid chamber for receiving an amount of liquid from said reservoir via said inlet, a pressurization chamber for generating pressurized steam to deliver the liquid in said liquid chamber as a pressurized liquid pulse to the utilization station, and a heating system for providing heat to said pressurization chamber to generate pressurized steam;

an outlet having a liquid intake port in said liquid chamber and a conduit for directing the pressurized liquid pulse to the utilization station;

an inlet valve for said inlet for allowing the liquid from said reservoir to fill said liquid chamber, said inlet valve having an valve opening and a valve seal member adapted to open said valve opening to allow liquid to enter said liquid chamber after the delivery of a pressurized liquid pulse to the utilization station and to prevent the reverse flow during the delivery of the liquid pulse;

at least one partition for separating said pressurization chamber from said liquid chamber to substantially prevent the pressurized steam generated in said pressurization chamber from mixing with or heating the liquid in said liquid chamber during the delivery of the pressurized liquid pulse;

wherein said liquid chamber having a first end adapted to receive the pressurized steam from said pressurization chamber and a second end, said liquid in said liquid chamber being at a temperature below the boiling point of the liquid; and

wherein said pressurization chamber comprises an evaporation chamber in which said heating system generates said pressurized steam, a chamber bottom, and a steam outlet for directing the pressurized steam to said first end of said liquid chamber to pressurize and deliver the liquid in said liquid chamber as the pressurized liquid pulse to the utilization station.

93. (new) Apparatus as defined in claim 92 further comprising a supply of liquid for said pulse generator, said liquid having substantially lower vapor pressure than water.

94. (new) Apparatus as defined in claim 92 further comprising a supply of liquid, said liquid being substantially insoluble in water.

95. (new) Apparatus as defined in claim 92 further comprising an opening between said liquid chamber and pressurization chamber to allow the liquid in said liquid chamber to flow into said pressurization chamber after the delivery of the liquid in said liquid chamber by the pressurized steam.

96. (new) Apparatus as defined in claim 92 further comprising a steam director located at said first end of said liquid chamber for minimizing the interaction of said pressurized steam with the liquid in said liquid chamber when the pressurized steam is introduced to said liquid chamber from said pressurization chamber.

97. (new) Apparatus as defined in claim 96 wherein said steam director comprises a distribution chamber, a plate for said distribution chamber and a plurality of openings on said plate for distributing the pressurized steam to the liquid in said liquid chamber.